WHAT IS CLAIMED IS:

1. An automated library system having a plurality of data cartridges, the system comprising:

a plurality of storage cells to store the plurality of data cartridges;

at least one rail disposed adjacent to the plurality of storage cells;

at least one primary coil disposed proximate the at least one rail;

a power supply connected to the at least one primary coil to produce an alternating current in the at least one primary coil;

at least one robot disposed on the at least one rail, the at least one robot being operative to insert and remove the plurality of data cartridges at least one at a time from the plurality of storage cells; and

a secondary coil disposed on each of the at least one robots respectively and positioned to inductively couple at least a portion of the alternating current in the at least one primary coil to the at least one robot.

2. The automated library system of claim 1 wherein the at least one primary coil is a plurality of primary coils.

3. The automated library system of claim 2 further comprising a second secondary coil disposed on each of the at least one robot respectively and positioned to inductively couple at least a portion of the alternating current in at least one of the plurality of primary coils to the at least one robot.

4. The automated library system of claim 3 wherein a powerless region exists between adjacent ones of the plurality of primary coils, and wherein the secondary coil and the second secondary coil on each of the at least one robot are

spaced apart from each other at least as far as the powerless region to maintain inductive coupling to at least one of the plurality of primary coils.

5. The automated library system of claim 2 further comprising a battery disposed on each of the at least one robots respectively to supply electrical power to the at least one robot.

6. The automated library system of claim 2 further comprising a switching unit coupled between the power source and the plurality of primary coils, the switch unit being operative to individually switch on and off the alternating current to each of the plurality of primary coils.

7. The automated library system of claim 6 further comprising a plurality of sensors in communication with the switching unit, the plurality of sensors being disposed proximate the plurality of primary coils, at least one sensor of the plurality of sensors being associated with each of the plurality of primary coils respectively to generate a signal informing the switching unit when the at least one robot is proximate the respective primary coil.

8. The automated library system of claim 6 further comprising a plurality of inductance sensors in communication with the switching unit and coupled to the plurality of primary coils, one inductance sensor of the plurality of sensors being coupled to a respective one of the plurality of coils to generate a signal informing the switching unit when the at least one secondary coil is inductively coupled to the respective primary coil.

9. The automated library system of claim 6 further comprising a controller in communication with the at least one robot and the switching unit, the controller being operative to generate commands directing movement of the at least one robot among the plurality of primary coils and to command the switching unit when to switch on and off the alternating current to individual primary coils to manage distribution of the alternative current to the plurality of primary coils.

10. A robot for use in an automated library system having a controller and at least one primary coil carrying an alternating current, the robot comprising:

a frame;

a drive mechanism attached to the frame and engaging the automated library system to move the robot about within automated library system;

an electronics circuit disposed on the frame and in communication with the drive mechanism and the automated library system to facilitate control of the drive mechanism in accordance with commands from the controller;

a magnetic core disposed on the frame, the magnetic core having a first core member disposed on one side of the at least one primary coil and a second core member disposed on the opposite side of the at least one primary coil, wherein the second core member engages the first core member to form a closed magnetic path and the second core member moves relative to the first core member to form a gap that allows insertion and removal of the magnetic core from the at least one primary coil;

a secondary coil wound around the magnetic core and electrically connected to the electronics circuit, the secondary coil inductively coupling at least a portion of the alternating current from the at least one primary coil to the electronics circuit.

11. The robot of claim 10 wherein the coupling is a set of complementary guide surfaces provided in the first core member and the second core member that enable the second core member to slide relative to the first core member.

12. The robot of claim 11 further comprising a resilient member disposed between the first core member and the second core member to bias the first core member and the second core member towards each other.

13. The robot of claim 10 wherein the coupling comprises a hinge attached between the first core member and the second core member.

14. The robot of claim 13 further comprising a resilient member disposed between the first core member and the second core member to bias the first core member and the second core member towards each other.

15. The robot of claim 10 further comprising:

a second magnetic core disposed on the frame, the second magnetic core having a third core member and a fourth core member;

a second magnetic core disposed on the frame, the magnetic core having a third core member disposed on one side of the at least one primary coil and a fourth core member disposed on the opposite side of the at least one primary coil, wherein the fourth core member engages the third core member to form a closed magnetic path and the fourth core member moves relative to the third core member to form a gap that allows insertion and removal of the second magnetic core from the at least one primary coil;

a second secondary coil wound around the second magnetic core and electrically connected to the electronics circuit, the second secondary coil inductively coupling at least a portion of the alternating current from the at least one primary coil to the electronics circuit.

16. The robot of claim 10 further comprising a battery disposed on the frame and electrically connected to the electronics circuit to supply electrical power to the electronics circuit.

17. A method of operating an automated library system having a plurality of data cartridges, wherein the automated library system has at least one robot operative to move adjacent to at least one primary coil, the method comprising;

providing an alternating current in the at least one primary coil;

inductively coupling at least a portion of the alternating current in the at least one primary coil into the at least one robot to produce a secondary alternating current;

converting the secondary alternating current into a mechanical movement of the at least one robot; and

directing the mechanical movement of the at least one robot to manipulate the plurality of data cartridges at least one at a time.

18. The method of claim 17 wherein the at least one primary coil is a plurality of primary coils, and the step of providing the alternating current in the plurality of primary coils comprises:

determining a relative position between the at least one robot and each of the plurality of primary coils;

applying the alternating current to each of the plurality of primary coils proximate the at least one robot; and

removing the alternating current from each of the plurality of primary coils distant from all of the at least one robot.

19. The method of claim 17 wherein the at least one primary coil is a plurality of primary coils, and the step of inductively coupling the alternating current comprises:

inductively coupling at least a portion of the alternating current in a first primary coil of the plurality of coils into the at least one robot to produce a first secondary alternating current; and

inductively coupling at least a second portion of the alternating current in a second primary coil of the plurality of coils into the at least one robot to produce a second secondary alternating current.

20. The method of claim 19 wherein the step of converting the secondary alternating current into the mechanical movement comprises:

rectifying the first secondary alternating current to produce a direct current in response to producing the first secondary alternating current;

rectifying the second secondary alternating current to produce the direct current in response to producing the second secondary alternating current; and

converting the direct current into the mechanical movement to manipulate the plurality of data cartridges in response to producing the direct current.

21. The method of claim 17 further comprising:

providing a battery on each of the at least one robots to provide a direct current; and

wherein the step of converting the secondary alternating current into the mechanical movement comprises:

rectifying the secondary alternating current to produce the direct current; and

converting the direct current into the mechanical movement to manipulate the plurality of data cartridges.